

that their visits were only at roosting time. Their noise could have got on the nerves of the female woodpecker and made her try to shoo them off. If the mynas had been planning to usurp the nest, they should have paid some visits earlier in the day as well. Also, they would certainly have taken possession of the cavity as soon as the woodpeckers had left.

The photographs illustrating this note were taken by Mr Robert Horwich at my request. I am gratefully obliged to him for sparing the time taken up by the photography as well as for his company. To Mr K. Nanu Nair, Wild Life Preservation Officer, Thekkady, my indebtedness is even greater, for without his enthusiastic co-operation I would not have heard of this nest or watched it in such comfort and style. I am also grateful to Mr D. Vaidyanath, Photographer, Trivandrum Museum, for processing the negatives and printing the photos.

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May 6, 1974.

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#### 11. ON THE OCCURRENCE OF *LANIUS EXCUBITOR* *AUCHERI* BONAPARTE IN PUNJAB

Stuart Baker (FAUNA 2:288) said that *Lanius excubitor aucheri* Bonaparte extended in winter into the plains of the Punjab and NW. Frontier Province, but Ali & Ripley (1972, IND. HANDBOOK 5:82) restrict it as a winter visitor to N. Baluchistan and central and coastal Makran.

In 1941, in 'The Birds of Bahawalpur (Punjab)' (*J. Bombay nat. Hist. Soc.* 42:717) Sálím Ali referred to a ♀ grey shrike collected in Bahawalpur town environs on 29 January 1939 and named it *Lanius excubitor lahtora* (Sykes). Upon re-examination I make this *aucheri*, which identification is confirmed by Mr Bond at Smithsonian Institute.

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#### 12. CHANGE OF IRIS COLOUR DURING THE POST-FLEDGING PERIOD IN THE COMMON BABBLER (*TURDOIDES CAUDATUS*)

##### INTRODUCTION

During the course of ringing operations in an area of mixed *Prosopis/Acacia* woodland and *Zizyphus* scrub adjacent to New Delhi notes were kept on the colour of the iris and the state of moult among Com-

mon Babblers. During the period between fledging, and the completion of the post-juvenile moult Common Babblers were found to undergo two changes of iris colour, and at close range these enable birds to be aged in the field up until four or five months old.

### Methods

About 200 Common Babblers were trapped between August-November 1971, and between July-November 1972, of which 70 were birds in their first year which had not yet completed their post-juvenal moult. Juvenile birds could be identified by the blunt, rounded tips to their primaries, particularly the 10th, as mentioned by Naik & Andrews (1966) for the Jungle Babbler (*Turdoides striatus*).

The state of moult was recorded for each bird according to the system used by Newton (1966), where each new or growing primary feather is assigned a rank score from 0 (feather missing) to 5 (growth complete). Secondary moult was scored in the same way, and the state of moult in the retrices, wing coverts, and body tracts was noted in general terms. The colour of the iris was also noted.

During 1972 a number of nestlings were ringed, and six of these were retrapped during the post-juvenal moult. A total of 13 birds in the two seasons, were trapped two or more times during the course of their post-juvenal moult, and from these the mean rate of post-juvenal moult was calculated in points/day. This rate was then used to calculate a date of commencement for the post-juvenal moult of the six birds ringed as nestlings, and hence find the mean length of time between fledging and the onset of post-juvenal moult.

### Results

The course of post-juvenal moult is fairly similar to that of the adult moult, which in turn resembles that of the adult Jungle Babbler described by Naik & Andrews (1966). In contrast to the adult moult, however, the moult of the greater coverts usually begins before the onset of the primary moult, and the moult of the retrices lags behind that of the primaries so that birds are found with a complete set of adult primaries, but most, or in some cases all, of the juvenal retrices. Because of the abrasion the juvenal retrices tend to become hard to identify after a few months and do not provide much help in ageing.

The mean rate of the post-juvenal moult in points/day was found to be 0.95 ( $n = 13$ , 95% confidence limits 0.61-1.29), giving a mean length of primary moult of 105 days (95% confidence limits 77-164 days).

Using the six individuals for which the date of fledging was known, and the mean rate of primary moult, the periods between fledging and

the commencement of the primary moult were calculated as 30.5, 31.5, 36.5, 39.5, 47, and 47 days (mean = 38.7 days). Thus the mean duration of the period between fledging, and the completion of the primary moult is about 144 days.

The colour of the iris in the adult *Turdoides caudatus* was found to be invariably a dark, warm brown, sometimes with a narrow white marginal rim. No birds in juvenal plumage, or in post-juvenal moult, showed exactly this colour of iris. Table 1 shows the different categories into which irides could be classified, and the number of birds at each stage of post-juvenal moult recorded in each class.

TABLE 1

RELATIONSHIP OF IRIS COLOUR TO PRIMARY SCORE DURING POST-JUVENAL MOULT

Iris colour	Number of individuals trapped in each moult score category						
	0	1-19	20-39	40-59	60-79	80-99	100
1. Dark grey with olive tinge (nestlings and birds with juvenal remiges not fully grown)							
2. Dark grey				4	(all moulting greater coverts)		
3. Pale hazel brown		3	12	9	12	7	4
4. Dark brown at centre, grading to hazel at margin				1	2	1	1
5. Dark brown with traces of hazel at the margin						2	7

The majority of birds trapped during the course of the post-juvenal primary moult (88%) showed a pale hazel iris. The coincidence of the hazel iris with the duration of the post-juvenal moult suggests that the changes in iris colour might be linked to the same hormones that initiate and control the course of the moult.

A few birds reared late in the season do not commence the post-juvenal moult until the following spring, but in these birds the juvenal iris colour is lost, and the iris changes to hazel, although the exact timing of this change was not observed. One bird, reared in early October, was still in juvenal plumage the following February, and had a hazel iris at 120 days old. Another, reared in September, showed arrested moult at P<sub>3</sub> when trapped in February and had a hazel iris at 150 days old.

The occurrence of the transitional stages between hazel and the adult colour in only 14 out of the 59 birds trapped in post-juvenal moult suggests that this change probably takes less than a month. The transition from the juvenal colour to hazel must be even more rapid, since transitional individuals were seen at all.

In the field a bird which has not yet started the post-juvenal moult can be easily recognised by the yellow, fleshy gape. This usually disappears soon after the onset of the post-juvenal moult, and during this period the hazel iris provides a useful guide to the age of the bird at close range, since it is much paler than the adult iris.

#### Discussion

Among the Indian species of the genus, the Common Babbler is the only one to have a dark iris when adult. In the Jungle Babbler (*T. striatus*), the Rufous Babbler (*T. subrufus*), the Whiteheaded Babbler (*T. affinis*), Ceylon Rufous Babbler (*T. rufescens*), Spiny Babbler (*T. nipalensis*), and the Slenderbilled Babbler (*T. longirostris*) the adult iris is white, and in the Large Grey Babbler (*T. malcolmi*) and the Striated Babbler (*T. earlei*), bright yellow (Ali, Sálím & S. D. Ripley 1971). The colour of the nestling and early juvenal iris is very dark grey throughout the genus. It would seem likely that the dark adult iris of the Common Babbler has been evolved lately, and that the pale hazel iris which appears during the post-juvenal moult represents a recapitulation of the former adult colour.

In the Arabian Babbler (*T. squamiceps*) the female iris colour is similar to that of adult Common Babbler, but the adult male iris is off-white, and similar in colour to that of the Common Babbler during post-juvenal moult. The colour of the nestling and early juvenal iris is the same as that of the rest of the genus.

The Arabian Babbler is extremely similar to the Common Babbler in general morphology, differing from it mainly in its larger size. Since the western races of the Common Babbler are larger than the eastern ones, it seems possible that the Arabian Babbler may represent the speciation of the western end of a former cline, running from peninsular India to the Near East.

In bill colour, adult male Arabian Babblers resemble first year birds of both sexes, whereas the bill changes colour in adult females, and in this respect the adult male character may be considered neotonous (A. Zahavi, pers. comm.). If this is the case then it seems likely that sexual dimorphism in the Arabian Babbler must have evolved through retention of the juvenal iris colour in the male.

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